Modified PTO/SB/33 (10-05)

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number	
Q77411	

Application Number	Filed
10/657,099	September 9, 2003

Mail Stop AF
Commissioner for Patents
P.O. Box 1450 Alexandria, VA 22313-1450

First Named Inventor	
Michiaki SAKAMOTO	

Art Unit	Examiner
2871	Tarifur Rashid CHOWDHURY

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal

The review is requested for the reasons(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

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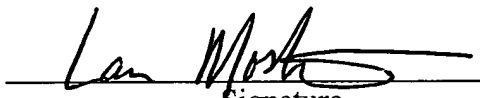
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June 30, 2006
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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Michiaki SAKAMOTO, et al.

Docket No: Q77411

Appln. No.: 10/657,099

Group Art Unit: 2871

Confirmation No.: 9849

Examiner: Tarifur Rashid CHOWDHURY

Filed: September 9, 2003

For: LIQUID-CRYSTAL DISPLAY DEVICE AND FABRICATION METHOD THEREOF

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MAIL STOP AF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the new Pre-Appeal Brief Conference Pilot Program, and further to the Examiner's Final Office Action dated December 30, 2006, Applicant files this Pre-Appeal Brief Request for Review. This Request is also accompanied by the filing of a Notice of Appeal.

Applicant turns now to the rejections at issue: As of the final rejection of December 30, 2006, claims 1, 2, and 8-16 are withdrawn. Claims 3-7 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Sawayama (U.S. Patent 6,184,960) in view of Shimada (U.S. Patent 5,949,507). For at least those reasons discussed below, Applicants submit that this rejection is improper, and reversal of the outstanding rejection is requested.

Brief Summary of the Cited References. Sawayama describes a method of making a reflective LCD (liquid crystal display), including forming unevenness on an interlayer insulator 29 (Figures 7A-7I). A first photosensitive resin 24 is applied to a glass substrate and is exposed through a mask 25 and developed. A second photosensitive resin 28 is applied over the first resin

and is exposed through a second mask 27 to form a contact hole through the first and second resin layers. Figures 7A-7I do not illustrate a terminal area.

Shimada describes an LCD apparatus and a method of producing the same. As illustrated in Figures 20A-20F, the method includes forming an electrode 42 and a terminal 50a on a substrate 41; depositing an insulating film 46 over the entire surface of the substrate 41; and patterning the insulating film (col. 28, lines 33-37). As shown in Figures 20E and 20F, if any insulating film is applied in the terminal region, it is entirely removed in the terminal region. The insulating film is also entirely removed in the contact-hole region.

The combination of Sawayama and Shimada fails to teach or suggest each of the claimed limitations of the present invention. As submitted in each of Applicants' responses,[1] neither Sawayama nor Shimada teaches or suggests a photosensitive organic material having the claimed thicknesses[2] or the claimed exposure values.[3]

Sawayama: Regarding the claimed thicknesses and exposure values, the Examiner refers to Figure 7F of Sawayama. Figures 7A through 7I do not illustrate any terminal region, and therefore these figures and the descriptions thereof fail to teach or suggest any third thickness or third exposure value in a terminal region. The Examiner appears to acknowledge this: "it is noted

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[1] *See* 1.111 Response filed October 14, 2005, pages 2-5; and 1.116 Response filed May 30, 2006, pages 1-3.

[2] Independent claim 3 recites: "the photosensitive material layer having a first thickness in the reflection region, a second thickness different from the first thickness in the contact-hole area, and a third thickness different from the first and second thicknesses in the terminal section" (emphasis added).

[3] Independent claim 3 also recites: "exposing the photosensitive organic material layer to exposing light in such a way that the photosensitive organic material layer in the reflection region is exposed at a first exposure value according to the first thickness, the photosensitive organic material layer in the contact-hole area is exposed at a second exposure value according to the second thickness, and the photosensitive organic material layer in the terminal section is exposed at a third exposure value according to the third thickness" (emphasis added).

that even if Sawayama does not disclose the various thicknesses, particularly in the terminal region ..."[4] Applicants submit that no portion of Sawayama teaches or suggests the claimed third thickness of the photosensitive material layer in the terminal section and the claimed third exposure value in the terminal section according to the third thickness.

Shimada: With respect to Shimada, regarding the claimed thicknesses and exposure values, the Examiner refers to col. 5, lines 50-57 and to Figure 4C. However, Figure 4C fails to illustrate any terminal region. The terminal region of the LCD and the method of forming the terminal region are illustrated in Figures 20A-20F. As discussed above, Figures 20A-20F illustrate an insulating film applied to the substrate, on which the electrode and the terminal are disposed, and patterning the insulating film (col. 28, lines 33-37). Shimada is silent as to whether the insulating film is applied to the terminal section. However, as clearly shown in Figures 20E and 20F, there is no insulating film in either the terminal region or in the contact-hole region. Therefore, the resultant thickness in the terminal region is the same as that in the contact hole region: zero. Likewise, there is no teaching or suggestion in Shimada of exposing the insulating film in the terminal region at a third exposure value. Thus, Applicants submit that, like Sawayama, Shimada fails to teach or suggest the claimed third thickness of the photosensitive material layer in the terminal section or the claimed third exposure value in the terminal section.

The claimed features of the present invention would not have been obvious to one of skill in the art at the time of the present invention. As previously submitted,[5] it would not have been obvious to one of skill in the art to modify the cited references to create a photosensitive organic material layer of a third thickness in a terminal section or to expose such a

[4] December 30, 2006, Final Office Action, p. 6.

[5] *See* 1.116 Response of May 30, 2006, pages 4-6.

layer at a third exposure value, as claimed. In the prior art, the exposure values for a reflection region 222a and a transmission region 222b of a display section 222 of a photosensitive organic material layer 210 have been considered and optimized.[6] However, the relationship between the exposure value for the display section 222 and the exposure value for the terminal section 223 had not been considered.

The photosensitive organic material layer 210 is thick, and the surface of the layer 210 is flat, as shown in Fig. 1B. Therefore, prior to exposure, there is a considerable thickness difference between the display section 222 and the terminal section 223. In the prior art, considering this thickness difference, the exposure value for the transmission region 222b or the exposure value for the display section 222 is equal to the exposure value for the terminal section 223 of the layer 210, so that the layer 210 over the termination section 223, is completely removed.

Therefore, the layer 210 is likely to be overexposed in the transmission region 222b or in the contact hole area of the display section 222. This is because the thickness of the layer 210 in the transmission region 222b or in the contact hole are of the display section 222 is smaller than the thickness of the layer 210 in the terminal section. As a result, defects, such as "stage image transfer" and/or "mask image reflection" may occur. These defects were discovered by the inventors of the present invention, and the present invention was created to eliminate these defects.

In the invention as recited in claim 3, the third exposure value, which is the largest, is set to remove the entire thickness of the layer 10 in the terminal section 23. The second exposure

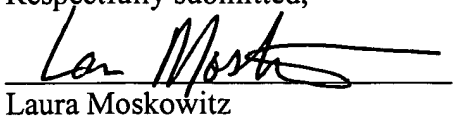
[6] *See* "Background" section of present Application and Figure 2.

value, which is in the middle, is set to remove the entire thickness of the layer 10 in the contact-hole area of the display section 22. The first exposure value, which is the smallest, is set to partially remove the thickness of the layer 10 in the reflection region 22a. In this way, in the present invention as recited in claim 3, the three exposure values are optimized for the respective regions, thereby eliminating the above-described defects, such as "stage image transfer" and/or "mask image reflection."

Thus, Applicants submit that one of ordinary skill in the art at the time of the invention would not have been motivated to differentiate the exposure values for the reflection region 222a, the contact hole area, and the terminal section 223, as recited in claim 3.

Conclusion. In view of the arguments advanced above, and those previously presented,[1] Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness. Thus, claims 3-7 are patentable over the cited combination of references. Applicants respectfully request reconsideration of the Advisory Action and withdrawal of the rejection under 35 U.S.C. § 103(a) of claims 3-7.

Respectfully submitted,



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[1] *See* 1.111 Response filed October 14, 2005 and 1.116 Response filed May 30, 2006.